Water for Life:

NOVA SCOTIA'S WATER RESOURCE MANAGEMENT STRATEGY

NOVA SCOTIA

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A MESSAGE FROM THE MINISTER

~ Honourable Sterling Belliveau, Minister for the Environment

We are planning for Nova Scotia's future. To protect our environment, and grow our economy, we are working now to ensure a cleaner, greener, more prosperous province for our children and for generations to come. Our water strategy is a crucial part of this planning. *Water for Life: Nova Scotia's water resource management strategy* was developed from a great deal of research and much consultation with Nova Scotians.

Our province is adopting an integrated approach to water management. That is, every department across our government will be involved in the good management of our province's water resources, based on best known practices. This comprehensive strategy will secure Nova Scotia's role as a leader in water resource management in Atlantic Canada and across the country. It meets the intent of the Canadian Council of Ministers of the Environment (CCME) *Strategic Directions for Water* of 2009. It also supports the Council of the Federation (COF) Water Charter, agreed to by all premiers in 2010.

Nova Scotians care about their water and have concerns that it be well protected and properly used. They know that water is not an unlimited resource. It needs our careful attention. This water strategy offers direction to guide decision-making so that all departments can implement actions and plans to ensure the best use and protection of our water. But it goes beyond government. We all play a role. Business, industry, tourism, agriculture, municipalities, hospitals, homeowners, and other water users – many groups will be able to contribute to better water management in our province under the guidance of this strategy.

This water strategy will complement and support Nova Scotia's natural resources strategy and the province's coastal strategy. Both soon to be released. These three strategic documents will help guide our actions, in an interconnected way, toward a healthier environment and more prosperous future.

Water is essential for life and will be valued, kept safe, and shared

- the Nova Scotia government's vision for provincial water resources

INTRODUCTION

Good, clean, and abundant water is essential for people and for the environment to survive. It is also critical for many of the activities that help communities and ecosystems to thrive. We must take action today to ensure that we continue to enjoy the benefits of our water in the future. We value water for our health, both physically and emotionally. We know we need water to survive. When has your spirit not been lifted when you see or feel the beauty of water?

Our province's heritage and our economic prosperity are directly linked to our water, whether it's from fishing and tourism, or from innovative ways we use water in new industries. The rivers and lakes of this province have been fundamental to the First Nation people's way of life since before recorded history. In the Acadian dykelands and Shubenacadie Canal, we see evidence of our historical reliance on water resources. Water was the determining factor for where communities were founded. It connected people and helped move them across the land. It remains part of our provincial identity today.

Water serves to keep our ecosystems functioning and healthy. It provides habitat for fish, plants, and insects. It feeds our forests, meadows, and crops. The landscape can act as a sponge, absorbing water, storing it, and moving it through the soil, plants, and atmosphere.

Water is fundamental to all aspects of our economy. People will not choose to live, visit or do business in Nova Scotia without a good quality, secure supply of water. Safe, good quality water is important for service-based industries that make up 75 per cent of Nova Scotia's gross domestic product (GDP). Resource-based industries such as forestry, agriculture, and fisheries require a healthy environment of which water plays an essential role. Other industries, need access to enough water for industrial processes. These processes include heating and cooling, materials extraction, waste disposal, food processing, and energy generation.

Water is also essential for our homes and communities, especially for drinking and waste removal. In Nova Scotia, 40 per cent of the population rely on groundwater from wells or springs for drinking water. The other 60 per cent rely on municipal and public drinking water supplies, which draw water from both groundwater and surface water sources. Approximately 45 per cent of Nova Scotians rely on on-site sewage disposal systems for their household wastewater systems.

Without adequate drinking water and wastewater treatment, communities, households and businesses would not survive. Around the world, one in three people does not have enough water for daily needs. We are fortunate in Nova Scotia to continue to enjoy safe and secure water resources that meet the needs of our communities, businesses, and natural environment.

The Mi'kmaq of Nova Scotia and their connection to water

Long before contact with the Europeans, the Mi'kmaq depended on the land and water for survival. To this day, the Mi'kmaq maintain their perspective on water based on this historical connection. We want to encourage the protection and wise management of water resources in a manner consistent with the recognition and affirmation of existing Aboriginal and Treaty rights in Section 35 of the Constitution Act (1982), including the duty to consult with First Nations. The province consults with the Mi'kmaq on most major projects and policy initiatives. This way it can understand and address, where appropriate, any potential infringements on Aboriginal or Treaty rights.

The Mi'kmaq in Nova Scotia face particularly complex jurisdictional challenges. Although Mi'kmaq reserve lands are under the responsibility of the Federal Government, the provincial government supports and includes the Mi'kmaq when making decisions about land and water. We are encouraging more cooperation on water issues between Mi'kmaq and adjacent municipal governments. By committing to new partnerships and long-term collaboration, governments and Mi'kmaq can share in the responsibility of protecting water resources for many generations.

Challenges and considerations when managing our water resources

Nova Scotia has 13 300 km of coastlines, more than 6,700 lakes, hundreds of rivers and wetlands, and abundant groundwater. Yet water is a critical issue for our society, our economy, and for the environment. It's at the core of our future prosperity—we depend on it for almost every aspect of our lives. We need to value and recognize this natural asset for the vital contribution it makes. There are several factors that we need to consider when managing water resources in Nova Scotia.

We measure the quality of our land by the quality of our water. It tells the story of who we are. It's all right there in the water.

~ Nova Scotia Environmental Network

Preparing for the future: Human activity and the effect on water resources

We need to consider several factors when managing water resources in Nova Scotia. One of the biggest challenges is that human activity can have a significant effect on water resources. The activity can be from such things as land development and harvesting of natural resources.

Many changes in the water cycle's natural processes are forecasted for the province. These effects can be from land-based human activities, the level of development in an area, and changing climatic conditions. Once land has been disturbed, it is much more prone to damage from climate change.

Areas of land in watersheds that have been stripped of vegetation are more easily eroded. When more intense storms occur because of climate change, the land erodes even more quickly. This directly affects water resources close to these areas. More intense human development and activity, coupled with climate change, means we need to be even more vigilant when protecting our water resources.

We need to be prepared for several possibilities. These include flooding from storm surges and sea level rise, changes in the amount of precipitation during storms, and changes in storm frequency and intensity. Short, intense storms cause more erosion, and don't give the ground enough time to absorb the water that replenishes groundwater aquifers.

Changes in precipitation can mean less snow cover in the winter and drought conditions in summer. Salt water can intrude, or seep, into fresh groundwater aquifers in coastal areas when water tables are low. Fresh water in the aquifers is replaced by unusable salt water. Water quality can change when water temperatures increase, leading in changes to aquatic species.

All of these conditions can lead to less fresh water available for communities and ecosystems. The changes in water resources can have far-reaching effects on tourism and recreation, fisheries, hydroelectric power generation, municipal water supplies, and agriculture.

Definitions

WATER RESOURCES

Water resources, according to Nova Scotia's Environment Act, includes all fresh and marine waters that comprise all surface water, groundwater, and coastal water.

WATER CYCLE

The water cycle is the circulation of water from the atmosphere to the earth, and back into the atmosphere. Water falls as precipitation, seeps into aquifers as groundwater or runs into rivers, lakes, and eventually the ocean as surface water. Along the way, the water evaporates back into the atmosphere and the cycle continues.

GROUNDWATER

Groundwater is water found below the ground surface. It is stored underground in the pore spaces and fractures of soil and rock. Groundwater is the source of water for wells and springs and helps to sustain water flow in surface water bodies. It is a valuable resource because it supplies many Nova Scotian residents and businesses with their water supply and contributes to the health of our aquatic ecosystems.

AQUIFER

An aquifer is an underground geologic formation made of soil or rock that can yield significant quantities of water to wells. Aquifers should not be thought of as underground rivers or lakes. A more realistic image is a firm sponge made of soil or rock in which groundwater moves very slowly through a connected network of pores or fractures.

WATERSHED

A watershed is the area of land from which surface water drains into a common lake or river system or directly into the ocean. The flow is generally inwards and downwards, according to the topography of the surrounding landscape. The boundaries of a watershed area are known as a drainage divide. Precipitation falling on opposite sides of a divide falls into different watersheds.

Conservation and sustainability

Nova Scotians can improve their water and energy conservation by considering changes in water and energy uses. Canada's water consumption rate per household is the second highest in the world. We use on average 328 litres per person per day. It takes energy to treat, move, pump, and use water. The more water that Nova Scotians use, the more energy we use. That can create more greenhouse gases and air pollutants that accelerate climate change, as well as increase costs for the average household and business.

More than two thirds of municipal water is used for activities that don't require drinking-quality water. Many activities can use non-potable water such as rainwater or wastewater. By not using treated drinking water for activities such as watering lawns and gardens, flushing toilets, or washing cars, we can reduce our energy needs—and our impact on the climate.

Shifts in population

Although the population of this province is not expected to increase significantly in the coming decades, people are moving from rural to urban districts. Urban centres in places such as Halifax, Sydney, and Kentville are increasing in density, while populations in smaller, rural communities are declining.

This results in changes in water use. Managers must balance competing demands of traditional uses with new developments. We need to maintain existing infrastructure and invest in new systems needed to treat and distribute drinking water and wastewater.

Economics and investing for the future

While Nova Scotia currently has an abundance of water, we must protect its quality and quantity so that we can continue to benefit from it. We need to ensure that human activity has as little negative impact as possible on the watersheds and ecosystems that surround and support us.

Misuse, overuse, and contamination of our water puts us at a social, environmental, and economic disadvantage. It costs much more to repair damage once it is done. Drinking water sources that become contaminated can be irreparable and dangerous.

Good quality and quantity of water is essential for both the environment and the economy. Protecting it is an investment in our future.

Overlapping government jurisdictions

Water resources in the province are managed by different levels of government. They can be managed by municipal, provincial, or federal governments. This creates complex and overlapping responsibilities which can make managing water resources difficult. The water strategy aims to integrate water management to ease this problem.

COUNCIL OF FEDERATION WATER CHARTER

In August 2010, all premiers endorsed the Council of Federation (COF) Water Charter. This charter recognizes the importance of water to life and the economy across Canada. Through this charter, the premiers across the country agreed to

- continue to support research and development
- encourage water conservation and efficiency
- continue to monitor water quality and quantity
- invest in innovation within the water sector

www.councilofthefederation.ca/keyinitiatives/water. html

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www.councilofthefederation.ca/keyinitiatives/water. html

Guiding Principles of the Water Strategy

The government will carry out the water strategy using the following principles as guidelines:

SUSTAINABILITY

We must recognize the fundamental value of healthy water and ecosystems, and the social and economic importance of water to Nova Scotia. Today's decisions must consider tomorrow's effects, carefully balancing the water we use with the protection of natural ecosystems.

STEWARDSHIP

Stewardship means conserving and protecting water. It is based on both an individual and a collective responsibility to ensure safe, healthy water for future generations.

PARTNERSHIP AND COLLABORATION

Water is a shared resource, and its stewardship is a shared responsibility. Everyone must participate, including all levels of government, the private sector, communities, and individual citizens.

LEADERSHIP

Creating positive change in the way we manage our water will require strong leadership not only by the provincial government, but by all interested and affected parties.

ACCOUNTABILITY & TRANSPARENCY

Decision making should be based on evidence and open to public review.

ABOUT THE STRATEGY

Why do we need a water strategy?

Nova Scotia has an excellent leadership record of protecting drinking water. We have had a specific strategy for managing provincial drinking water since 2002. *A Drinking Water Strategy for Nova Scotia* has guided managers of public and municipal systems to produce high quality drinking water. Water treatment facilities have been upgraded, standards for well construction have been strengthened, and municipal water supplies have greater protection.

These are important measures that protect human health and make sure that we use our drinking water resources sustainably. But drinking water is just one aspect of how water is essential to our economy, health, and environment. In order to proactively address the challenges Nova Scotia faces, we need to find a more effective way to manage all provincial water resources, not just drinking water.

Our water strategy, *Water for Life*, outlines how to do this. We recognize that it's time to move towards a more comprehensive and integrated approach to water management. The strategy will create a framework to manage competing demands for water, and protect its quality and availability for future generations.

By carrying out this strategy, we can

- improve our understanding of watersheds and how they work
- learn how much water we have and how much we are using
- decide how and where we want our water used
- identify how we should continue to protect water
- use water in a way that is both economically and environmentally sustainable

The provincial government intends for Nova Scotia to have one of the most environmentally and economically sustainable ways of life in the world by 2020. Through the *Environmental Goals and Sustainable Prosperity Act* (EGSPA), water is recognized as a vital ingredient to a healthy and prosperous economy.

This water strategy will guide us in the management of water for the benefit of communities, businesses, industries, First Nations, and individuals. It ensures that we're staying on our path to sustainable prosperity. It ensures Nova Scotia will remain a great place to live, work, play, and do business into the future.

WHAT IS A STRATEGY?

A government strategy is a long-term plan designed to guide actions to achieve a vision or goal. A water strategy will help to guide government and others in their decision-making with respect to water.

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A government strategy is a long-term plan designed to guide actions to achieve a vision or goal. A water strategy will help to guide government and others in their decision-making with respect to water.

Our experience has shown us that collaborative efforts, based on a combination of voluntary measures, along with the appropriate and judicious use of regulations and guidelines is more effective in managing our natural resources than a "one size fits all" regulatory approach."

~ Nova Scotia Federation of Agriculture

What are we trying to achieve?

We developed the strategy by talking to Nova Scotians. We held consultations throughout the province and invited submissions by letter and by e-mail. We heard from government policy-makers, researchers, academics, teachers, business owners, industry, First Nations peoples, communities, organizations, and members of the general public. Using all this input, we have developed the strategy *Water for Life*.

A water resource management strategy will protect the health of Nova Scotians, our province's natural beauty, and the companies, industries, and organizations that contribute to our economic prosperity.

The actions outlined in this strategy encourage responsible economic development within a strong environmental framework. Extensive public and stakeholder consultation, in addition to strong interdepartmental collaboration, has greatly informed and shaped this strategy.

We want *Water for Life* to enable governments and other stakeholders to address important issues in water management. We also want to achieve the following five goals for the province:

Human Health

- ensure safe, secure water for consumption, recreation, and livelihoods

Economic Prosperity

- ensure sustainable and beneficial use of water resources

Ecosystem Integrity

- protect, conserve, and enhance water resources and dependent ecosystems

Emergency and Hazards Preparedness

- minimize the effect of water-related emergencies and hazards

Water Monitoring and Knowledge

- strengthen our understanding of provincial water resources

NATIONAL STRATEGIC VISION FOR WATER

In October 2009, the Canadian Council for Ministers of the Environment (CCME) endorsed a Canada-wide vision for water *Strategic Directions for Water*. This initiative outlines how CCME will help ensure that Canadians have access to water that is clean, safe and sufficient for their needs in ways that also maintain the integrity of ecosystems. In October 2010, Ministers approved a 3-year Water Action Plan that sets deliverables and outcomes under this strategic vision.
www.ccme.ca/ourwork/water.html

A better understanding of the role each individual can plan in protecting water quality and quantity will lead to a societal change in attitude similar to shifts like... reduce/reuse/recycle

~ Participant, Consultation Workshop

MOVING FORWARD

The Government of Nova Scotia is committed to the vision that water is essential for life, and that it should be valued, kept safe, and shared. By protecting provincial water resources, together we can contribute to a sustainable life and a prosperous economy for people and the environment, both today and into the future.

This document, *Water for Life*, will guide government and other stakeholders in their decisions when managing water in the province. It is a 10-year strategy that builds on our strengths and finds new ways and opportunities for managing and using provincial water resources. Many of these actions outlined in this strategy will become ongoing activities. They will make enduring contributions to how we manage our water resources in the province.

The actions are grouped into those that enable us to

- better **understand** the quality and quantity of our water
- **protect** the quality and quantity of water
- **engage** in caring for our water by building participation with others
- integrate water management across sectors and governments

Actions for Today and Actions for Tomorrow
As the provincial government, we are becoming a leader in water stewardship by identifying what actions we will take today. This ensures that we invest in a greener tomorrow as we deliver on this 10-year strategy.

We have divided the time frames of our actions based on whether we will start them over the next few years, or whether they will happen in the longer term. Actions for Today will be carried out over the next several years. Some of these actions must be started or even be completed before we can begin the longer-term Actions for Tomorrow. The short-term actions will help build the strong foundation required to move forward with the next phase of the strategy.

Directions for the Future
The *Water for Life* document also identifies where we want to go in the years ahead in a section called Directions for the Future. Working with partners and stakeholders, we will explore and consider opportunities that build on the goals of the water strategy.

INTEGRATED WATER MANAGEMENT (IWM)

What is IWM in principle?
The basis of Nova Scotia's water strategy is a concept called Integrated Water Management (IWM). IWM is a comprehensive approach to managing water resources, including human activities and their effects on watersheds and ecosystems. It aims to ensure sustainability of water resources and their functions today and into the future.

Integrating management of water means that we can work closely with other government departments and levels, stakeholders such as researchers and businesses, and other organizations. By working in partnership and pooling our knowledge, we can ensure that water resources are managed most effectively.

Using the watershed as a unit for analysis provides context so we can understand how impacts from both human and natural activities are felt and how they can accumulate. For example, sediment from a development upstream can affect salmon habitat downstream. To understand any potential effects of development, we need to examine the bigger picture. That requires easier access to data from water monitoring to research.

Many different communities share a single watershed. IWM brings people together to make decisions that will ensure communities have enough water of good quality and quantity. We must all understand water's value and role, and we must protect and engage in its care.

What does IWM mean in practice?
Integrated water management means thinking and re-thinking how we do business. This strategy will guide all of government in its decision making and activities with respect to water. It will help us to pool resources, and to identify where and how to best invest in our people, our communities, and our economy.

We must ensure that government and stakeholder actions are consistent when they relate to water and its dependent ecosystems. We also want to encourage and support better integration of multiple interests, users, and their concerns. In other words, we need to look at all sectors of the province to ensure that society's total needs for water are met. This will allow us to sustainably manage the resource, both environmentally and economically.

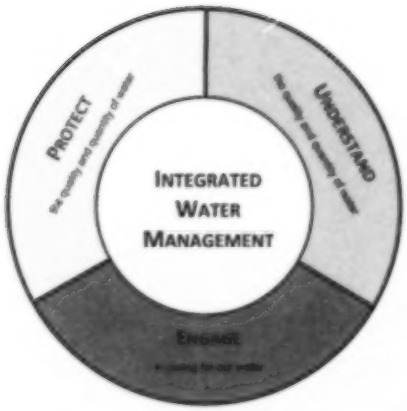
INTEGRATED WATER MANAGEMENT (IWM)
IWM is a comprehensive approach to managing water resources, including human activities and their effects on watersheds and ecosystems. It aims to ensure sustainability of water resources and their functions today and into the future.

The government plans to integrate water resource management by

- building capacity within its water programs to support a provincial commitment to integrated water resource management
- sharing resources and information while working with partners to manage water
- establishing a Nova Scotia Water Advisory Group (NSWAG) to work in partnership with government and advise it on the implementation of Integrated Water Management and the strategy
- considering the economic, social, and environmental value of water in government decision making
- renewing its policies as appropriate to enhance capacity for integrated water management

Integrated water management (IWM) requires a commitment from everyone. It uses three complementary areas of action—protect, understand, and engage—to manage water resources. By following this approach, we will strengthen partnerships across government departments, with other government levels, and with people outside of government.

The following actions of the strategy are organized according to three areas, understand, protect, and engage, as shown in the accompanying diagram.



The central role of IWM is shown surrounded and supported by the areas of action including understand, protect, and engage.

NOVA SCOTIA WATER ADVISORY GROUP

The Nova Scotia Water Advisory Group (NSWAG) will help the government to adopt a strong IWM approach. It will advise us on how to carry out the strategy, making sure we are held accountable. It will provide a strong voice for the many interested and vital parties outside the provincial government. These groups, including First Nations, municipalities, businesses, non-governmental and watershed organizations, have a role to play in managing our water resources.

UNDERSTAND THE QUALITY & QUANTITY OF OUR WATER

One of the keys to integrating water management is the sound knowledge of our provincial water resources. This includes understanding how watersheds work, the impacts of activities on water, how much water the province has, how it's being used, and what effect climate change will have.

Recent studies across Canada show that a lack of knowledge and access to information is a large barrier to managing water resources effectively. Better information is needed, not just for government decision making but for businesses making decisions as well. We have identified ways that will help to build this critical understanding.

Actions for Today

- Enhance the system for receiving and sharing water quality and quantity information with government and the public.
- Continue to build, support, and integrate existing water-monitoring networks to bolster baseline data and assessment tools, and to identify stresses on quality and quantity.
- Identify ecologically significant water resources, such as wetlands and critical groundwater recharge areas.
- Assess surface and groundwater in watersheds to develop water budgets on a priority basis.
- Engage with post-secondary institutions, industry, and communities in order to improve knowledge about water-related issues across the province.
- Undertake work to determine what impacts climate change will have on Nova Scotia's water cycle.

Directions for the future

Watersheds and ecosystems are constantly evolving. This can be from natural environmental processes or from constant human activities. Because of this, we will need to support and invest in science and research to understand future changes. This can include enhancing tools and systems for sharing and analysing data, such as Geographic Information Systems (GIS).

WATER BUDGETS

Water budgets are a tool used to compare the water that is naturally available versus the water that is currently being used in a watershed or aquifer. These budgets can help managers make decisions about what kind of activities can take place in a watershed, as well as identify when and where water shortages or other problems might occur.

CCME WATER QUALITY GUIDELINES

The Canadian Council of the Ministers of the Environment (CCME) has created the Canadian Environmental Quality Guidelines, which provide nationally endorsed science-based goals for the quality of aquatic, atmospheric, and terrestrial ecosystems. These will help us better manage water by providing

- national benchmarks to assess potential or actual threats to water quality
- a scientific basis for the development of criteria, guidelines, objectives or standards indicators for reporting
- science-based goals or performance indicators

For more information, go to www.ccme.ca.

PROTECT THE QUALITY & QUANTITY OF OUR WATER

Protecting our water is critical if we want to have a sustainable economy and way of life in this province. Protection includes addressing the needs of the natural environment as well as people, both physically and economically.

It also means finding new and innovative ways to use less water. New or larger supplies of water can become available simply by using better conservation methods. This gives new industries or other large water users the opportunity to create or expand operations.

LARGE WATER USERS

Large water users are defined by the regulatory requirement that anyone withdrawing more than 23 000 litres of water a day needs to apply for approval to do so. This applies to both surface water and groundwater.

For more information, go to www.gov.ns.ca/snsmr/paal/nse/paal182.asp

Actions for Today

- Require water conservation plans from large water users.
- Develop guidance for allocating water in times of emergency, such as a drought, contamination, or where aquifer and stream health is at risk.
- Assist municipalities, First Nations, and communities with source water-protection planning.
- Continue to implement and update municipal and public drinking water standards, and municipal wastewater effluent standards.
- Assess the current and future use of setbacks from fresh and coastal water resources.
- Integrate water values in the selection, planning, and management of parks and protected areas.
- Apply Canadian Council of the Ministers of the Environment (CCME)-based water quality standards and objectives as water-use targets for fresh and coastal waters.

Actions for Tomorrow

- Update current guidance for storm water management and sediment control to improve protection of water quality from land development activities.
- Continue to update the Nova Scotia Building Code to include water conservation and encourage efficiency and reuse.
- Develop tools to promote conservation and restoration of sensitive ecosystems and watershed features, such as wetlands.
- Evaluate and improve the regulatory framework for private wastewater treatment systems, including on-site sewage disposal.
- Enhance the protection of drinking water for rural communities with our community partners.
- Work with First Nations, municipalities, and communities to pursue innovative solutions to improve wastewater and drinking water treatment.

Directions for the future

Conservation and the efficient use of water plays an important role in this strategy. Not only do we need to protect the amount of water that is available, we must also ensure that high quality water is available when and where it's needed. For example, in rural areas people depend on wells for their drinking water and can't afford for them to run dry.

We recognize that water quality and quantity can easily be jeopardized. We will continue to develop and implement programs, tools, and policies that will help protect it.

The majority of people who live in Nova Scotia live in an urban area. Their water comes from a tap and their groceries from a retailing mega giant. I am not so sure that they understand how precious our water and agricultural resources are.

~ Resident, Stewiacke

NATIONAL WATER EFFICIENCY & LABELLING STANDARDS PROGRAM

National standards for water efficiency and labelling of water-using appliances are being developed under the direction of the Council of the Federation's Water Charter.

Water efficiency labelling and standards programs inform consumers about the product before they buy it. The labels provide information on the most efficient products on the market. The program will be much like Energy Star, which has successfully promoted energy conservation to Canadians.

ENGAGE IN CARING FOR OUR WATER

All people in the province need water and everyone can play a role in its management, not just the government. It doesn't matter if it is a business, an organization, the Mi'kmaq, or is simply an individual. We can help them by providing education, training, information, and participation opportunities.

This can contribute to an improved understanding of water. It also increases the protection of the resource by changing the way Nova Scotians do things. Providing opportunities for groups and individuals to get involved in caring for water promotes a public understanding and ethic of water stewardship. It can also encourage innovation and create opportunities for those outside of government to demonstrate leadership in water management.

Actions for Today

- Build capacity for community water monitoring in watersheds across the province.
- Work to engage youth in water stewardship and management activities.
- Support the establishment of national water efficiency and labelling standards program.
- Engage in outreach and partnership activities to promote water stewardship practices for residents to maintain and protect their health and property.
- Confirm support for the Canadian Heritage Rivers System, and increase the knowledge and profile of Canadian Heritage Rivers in Nova Scotia.

Actions for Tomorrow

- Facilitate the sharing of information and ideas between water users at a regional level through the establishment of a forum on water management.
- Recognize and encourage water stewardship efforts by establishing a program to recognize exemplary instances of water stewardship.
- Provide assistance to develop, implement, and promote projects that maintain or improve the stewardship of our fresh and coastal waters.
- Evaluate and update water-related educational tools for a range of water-related topics including conservation, property management, septic systems, and drinking water.
- Partner with business to develop and promote water-wise best practices such as conservation and efficiency.

Directions for the future

Many Nova Scotians are already engaged in caring for our water. But we understand that many watershed stewardship groups, non-governmental organizations, Aboriginal communities and organizations, businesses, and individuals require additional support. Because of this, we will continue to develop new ways of funding, and developing outreach and educational materials, and other tools for these groups.

THE CANADIAN HERITAGE RIVERS SYSTEM

The Canadian Heritage Rivers Program is a national, multi-stakeholder driven program that promotes, protects and enhances Canada's river heritage and ensures Canada's leading rivers are managed in a sustainable way. The Margaree and Shelburne Rivers are recognized through this program.

Watershed groups represent a tremendous potential resource that if harnessed could greatly extend government water management

~ Clean Annapolis River Project

SUMMARY

Nova Scotians currently face many challenging and complex water management issues. Through this strategy—*Water for Life*—we present the framework for taking action to address these issues and find solutions. We are working towards an integrated water management approach to guide our actions into the future. To manage water in Nova Scotia sustainably, we will consider all aspects of the resource—its economic, social, and environmental value.

A key purpose of the water strategy is to ensure that everyone recognizes how valuable water is to the province. As we stated in our vision, water is essential for life and must be valued, kept safe, and shared. By carrying out the strategy's commitments and actions, we can understand and protect the quality and quantity of water, and can engage others in caring for water.

Through the strategy, we can achieve the following:

- Safe, secure water for consumption, recreation, and livelihoods
- Sustainable and beneficial use of water resources
- Protection, conservation, and enhancement of water resources and dependent ecosystems
- Reduced impacts from water-related emergencies and hazards
- Greater knowledge about provincial water resources

Managing water is a big job, one that requires everyone to work together. Nova Scotia Environment (NSE) will lead how the strategy is carried out and integrated. It will work with other provincial departments and agencies, other governments, and key stakeholders to carry it out successfully. Part of the immediate work is to develop plans for implementing the strategy and how to measure its success.

The province will also continue to consult with the Mi'kmaq in Nova Scotia on the implementation of the strategy. This way we can better understand their concerns related to protecting and managing water resources, and work together to develop and carry out solutions.

This will be done by NSE and a core group of provincial departments that have strong roles and responsibilities with respect to water. The progress of the strategy will be tracked and reported using NSE's website and other reporting means, such as the annual progress report on the *Environmental Goals and Sustianable Prosperity Act* (EGSPA).

APPENDIX A:

Highlights of recent achievements in water management in Nova Scotia

bottled water policy

- In the spring of 2010, the Government of Nova Scotia adopted a bottled water policy, which limits the purchase of bottled water for events and promotes the use of tap water within provincial government departments.

toolkits for community water quality monitoring

- Together, Saint Mary's University and the Nova Scotia College of Art and Design developed a tool-kit that will assist community-based watershed stewardship organizations in the province undertake water quality monitoring activities. This is a component of a larger initiative to help willing volunteers in the more than 50 watershed organizations across the province work more closely and efficiently with the government agencies responsible for water quality. *http://www.envnetwork.smu.ca/welcome.html*

new information resources for private well owners

- Over the last three years Nova Scotia Environment developed three new resources to help private well owners understand the link between well water quality and their health. These resources include A Guide for a Private Well Owner, Your Well Water booklets on treating water, and The Drop on Water fact sheets on water quality. These documents were also translated into French to better meet the needs of provincial Acadian and Francophone communities. These resources can be seen online at *www.gov.ns.ca/nse/water/privatewells.asp*.

provincial water monitoring network

- **Groundwater** across the province has been monitored since 1965. In recent years, ten new groundwater observation wells have been added to the network, bringing the total number of stations to 35. Reports and data can be found at NSE's website at *www.gov.ns.ca/nse/water*.
- **Surface water** quality in Nova Scotia is also monitored through various programs such as lake surveys and joint initiatives between federal and provincial governments. There are five active surface water stations across the province that provide real-time data. This data can be found at *www.gov.ns.ca/nse/water*.

community groundwater monitoring

- The Ecology Action Centre, in partnership with the provincial departments of Environment and Natural Resources, has launched a new initiative Groundswell: Community-based Support for Sustainable Groundwater. With funding from RBC Blue Water Program, this project aims to initiate community action on groundwater monitoring, education and sustainability. *www.ecologyaction.ca/content/groundswell*

improved access to groundwater information

- The Department of Natural Resources and Nova Scotia Environment created an interactive groundwater map. The map includes information about geology, water chemistry, and the locations of drinking-water wells and municipal water supplies. It is available online at *http://gis4.natr.gov.ns.ca/website/nsgroundwater/viewer.htm*.

restoration of tidal flows to estuaries

- Transportation and Infrastructure Renewal has been working to restore tidal flows to estuaries when constructing new roads and performing general maintenance. Cheverie Creek and dykelands in St. Croix are successful examples of this restoration work.

innovative funding for stream restoration

- The Nova Scotia Salmon Association and the Nova Scotia Liquor Corporation (NSLC) have struck a unique partnership to help fund the protection and restoration of local watersheds to improve water quality and aquatic habitat. The NSLC Adopt-A-Stream program will benefit from a 5-year commitment of $500,000 to fund stream, river and headwater projects across the province. *www.adoptastream.ca*

climate change research

- In 2009, the Atlantic provinces joined together to work on climate change adaptation research. Through this project, they are investigating sea level rise and salt water intrusion. This will allow us to better understand how coastal communities can adapt infrastructure to withstand these challenges.

water supply evaluations for HRM

- Amendments were made in May 2010 to the Halifax Regional Municipality (HRM) Charter to allow HRM to require water supply evaluations for proposed larger subdivisions outside the water service area. This will give HRM greater authority to ensure that proposed subdivisions with private wells in HRM will have sustainable water supplies.

APPENDIX B:

A history of water management in Nova Scotia

Nova Scotia's rivers, lakes, and coastlines have always been essential to the people of the province. From early First Nation societies to the modern day lifestyle, we have always relied on Nova Scotia's water assets.

Early government protection of water resources

In 1919, the passage of the *Water Act* asserted that water would be a public resource. The Act would enable the province to address evolving issues such as hydro-electric power generation, and municipal and industrial water requirements.

1960s to 1990s

It was during the 1960s that the provincial government strengthened efforts to control water pollution and establish wastewater standards. The government also focused on regulating water wells to ensure people had safe drinking water. In 1963, it established the Nova Scotia Water Authority, later replaced by the Nova Scotia Water Resources Commission in 1968.

Five years later, the government passed the *Environmental Protection Act* of 1973, which enabled broader environmental protection of air and soil, and complemented the Water Act. With this Act, it formed a new department, called the Nova Scotia Department of Environment, to replace the Water Resources Commission. The department is now called simply Nova Scotia Environment (NSE). During the 1970s and 1980s, the government continued protecting water resources with a growing body of environmental legislation and programs.

Water management in the 1990s

In the 1990s, provincial attitudes towards water resources remained strong. In 1991, NSE published *Water for Nova Scotia: New Directions for Water Resource Management*. This was a final report for the Minister's Clean Water Task Force. It was followed by the 1992 *Sustainable Development Strategy for Nova Scotia*. This ultimately led to the 1995 *Environment Act*. This Act replaced the *Water Act* of 1919 and gave primary authority for water resources to the minister of NSE. The department is now responsible for managing water resources, allocating water, and charging fees for water use. It gets input from other departments, agencies, and the public to help with the task.

In addition to the *Environment Act*, the province developed the *Water Resources Protection Act* in 2000, prohibiting the bulk removal of water from Nova Scotia. In 2002, the province released *A Drinking Water Strategy for Nova Scotia*. It focused on strengthening the protection of municipal and public drinking water supplies. This strategy laid the foundation for a more comprehensive approach to managing all water resources in the province.

EGSPA and the water strategy

In 2007, all members of the legislature passed the *Environmental Goals and Sustainable Prosperity Act* (EGSPA). The act sets specific targets for Nova Scotia so that by 2020, it will have one of the cleanest and most sustainable environments in the world, including its water resources. One of the targets is to develop a comprehensive strategy for water resource management by 2010.

An interdepartmental water management committee, led by NSE, was formed to oversee development of the water strategy. Since April 2007, the committee and NSE have undertaken extensive consultation with the public, Mi'kmaq, municipalities, key stakeholders and government in order to develop the strategy.

In early 2008, NSE released a discussion paper called *Towards a Water Resource Management Strategy for Nova Scotia*. Using this paper, NSE held 14 public consultation sessions around the province to discuss the possible content of the water strategy. The results of the sessions and written feedback from individuals and stakeholders were compiled in a summary document called *What We Heard: A Public Feedback Report*.

In early 2010, Nova Scotia held targeted consultation sessions, this time with Mi'kmaq and key stakeholder groups including municipalities, health professionals, non-governmental organizations, and industry. These consultations were to obtain feedback on a document called *Options for a water resource management strategy for Nova Scotia*.

NSE used information from these consultations to help form the content of this document—*Water for Life: Nova Scotia's water resource management strategy*. This strategy from the provincial government is a significant commitment to protect water resources in Nova Scotia for years to come.

INTERDEPARTMENTAL WATER MANAGEMENT COMMITTEE

Aboriginal Affairs
Agriculture
Economic and Rural Development
Energy
Environment
Fisheries and Aquaculture
Health Promotion and Protection
Natural Resources
Service Nova Scotia and Municipal Relations
Tourism, Culture and Heritage
Transportation and Infrastructure Renewal
Utility and Review Board
Environment Canada
Fisheries and Oceans Canada

APPENDIX C:

Watersheds of Nova Scotia

The term watershed describes an area of land where all water flows down to the lowest point, through streams, rivers and underground, ultimately to the sea. Watersheds are also referred to as drainage basins, or river basins, and are defined by the topography of the land. This includes its shape, contours and heights. The illustration below shows the components of a watershed. These include streams, rivers, lakes, wetlands, estuaries, upland areas such as forest and meadows, and downstream areas such as shorelines.

Illustration of a watershed

In the 1920's, the Water Survey of Canada developed a Water Resources Index Inventory as a system for recording and filing water resources data. Their system divided Canada into eleven major drainage regions. Each region was subdivided further into primary, secondary, or smaller watersheds. This system has been used ever since.

The Maritime provinces are one of the eleven national drainage regions. The map below, fig. x, shows the 46 primary watershed divisions in Nova Scotia. Because of the way the province is shaped, the primary watersheds drain into four different coastal regions.

These include

- Atlantic Ocean, such as the LaHave or Sackville Rivers
- Bay of Fundy–Gulf of Maine, such as the Annapolis River
- Northumberland Strait, such as River Philip–Wallace
- Cape Breton Island/Bras d'Or Lakes, such as Salmon–Mira River

The primary watershed can be furthe subdivided into secondary watersheds. These in turn can be divided into many smaller tributary watersheds.

You can read more about provincial watersheds and freshwater hydrology in Natural History of Nova Scotia, Volume 1, Section T8.1. This is located on the Nova Scotia Museum's webpage at *http://museum.gov.ns.ca/mnh/nature/nhns/t8/t8-1.htm.*

Maps of provincial watersheds are available on our website at *www.gov.ns.ca/nse/water.strategy/resources.asp.*

Legend

Watershed Divides

1. Tusket River
2. Barrington/Clyde River
3. Meteghan River
4. Roseway, Sable, Jordan River
5. Sissiboo, Bear River
6. Mersey River
7. Annapolis River
8. Herring Cove, Medway River
9. Lahave River
10. Gold River
11. Gaspereau River
12. St. Croix River
13. East, Indian River
14. Sackville River
15. Shubenacadie, Stewiacke River
16. Kennetcook River
17. Musquodoboit River
18. Tangier
19. East, West River (Sheet Hbr)
20. Salmon, Debert River
21. Economy River
22. Parrsboro River
23. Kelly, Maccan, Herbert River
24. Tidnish, Shinimicas River
25. Missaguash River
26. Philip Wallace River
27. River John
28. East, Middle, West River (Pictou)
29. French River
30. St. Mary's River
31. Liscomb River
32. Country Harbour River
33. South, West River
34. Tracadie River
35. New Harbour, Salmon River
36. Clam Harbour, St. Francis River
37. River Inhabitants
38. Grand River
39. Isle Madame
40. Salmon, Mira River
41. North, Baddeck, Middle River
42. Indian River
43. Wreck Cove
44. Cheticamp River
45. Margaree River
46. River Denys, Big River

0 50 100 150 200 250 Kilometres

1:2,550,000

primary watersheds of Nova Scotia

Mixed Sources
Product group from well-managed forests and other controlled sources
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For further information about Water for Life: Nova Scotia's water resource management strategy please contact Nova Scotia Environment PO Box 442 Halifax, NS B3J 2P8

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